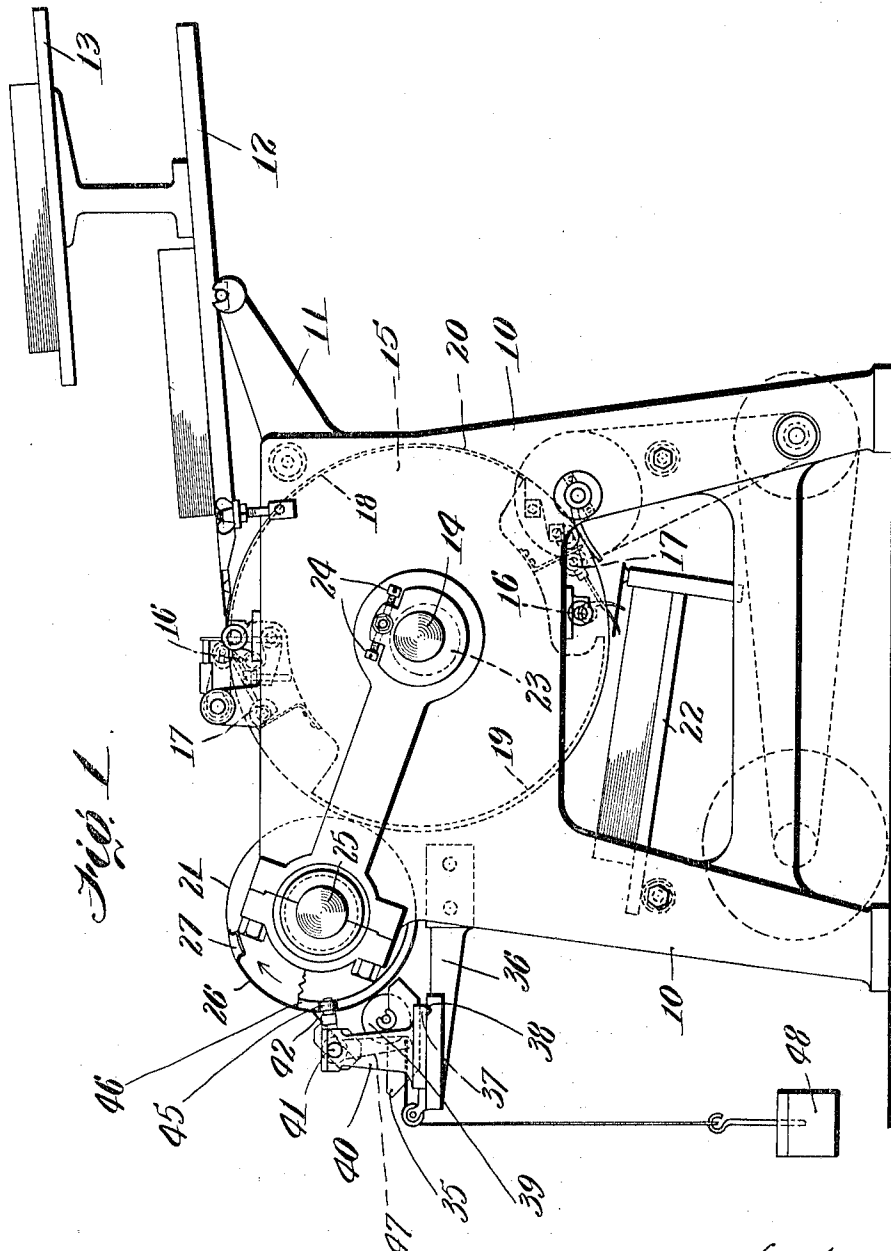


1,048,625.

2 SHEETS-SHEET 1.



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SHEET FED INTAGLIO PRINTING PRESS.
APPLICATION FILED MAR. 23, 1907.

1,048,625.

Patented Dec. 31, 1912.
2 SHEETS—SHEET 2.

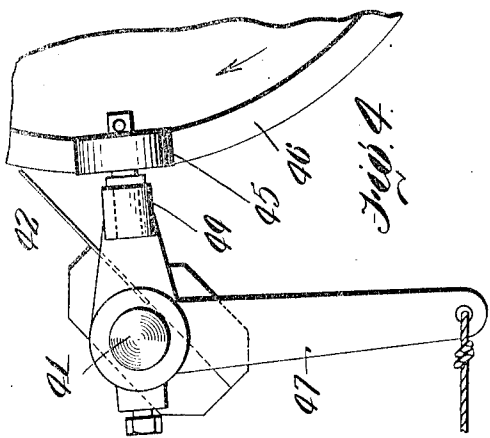


Fig. 4.

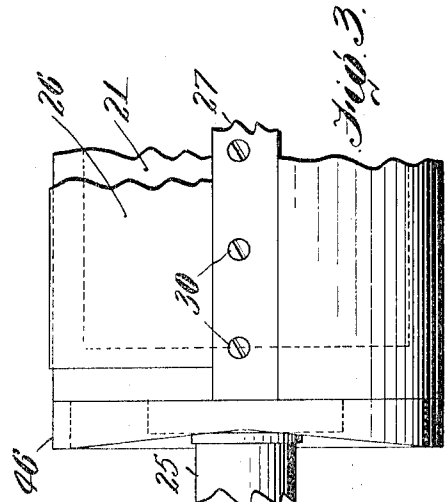


Fig. 3.

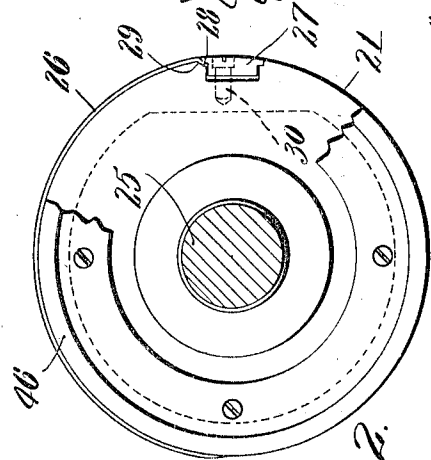


Fig. 2.

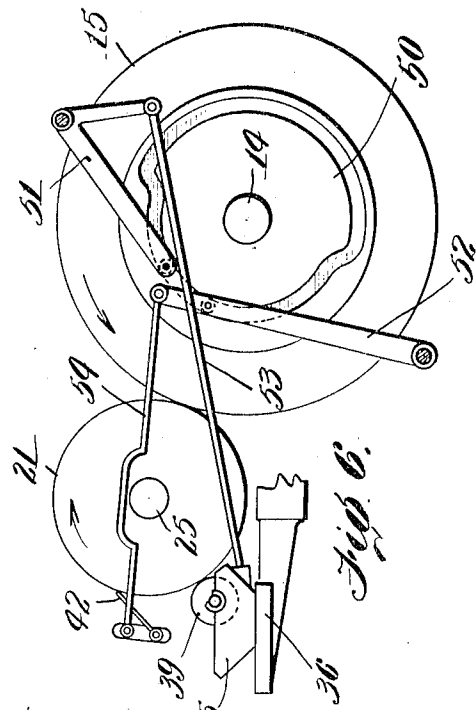


Fig. 6.

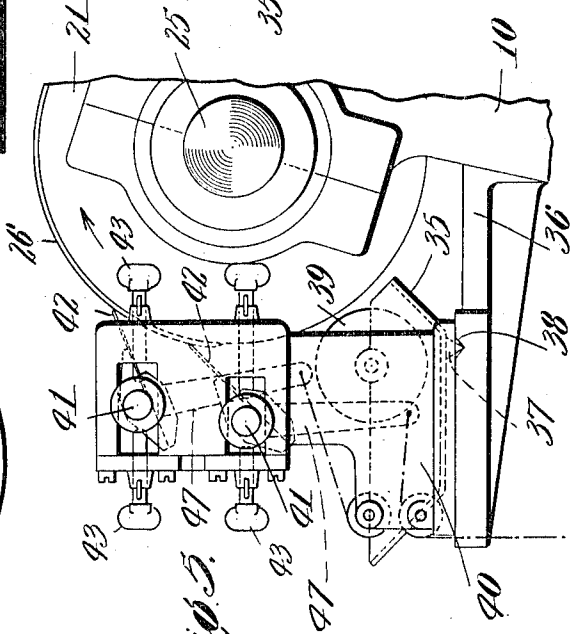


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO
WOOD & NATHAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SHEET-FED INTAGLIO-PRINTING PRESS.

1,048,625.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed March 23, 1907. Serial No. 364,017.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Sheet-Fed Intaglio-Printing Press, of which the following is a specification.

This invention relates to a press for intaglio printing, which while capable of use for substantially all kinds of intaglio printing, is especially adapted for heavy work. In this kind of printing it is necessary to slip-sheet the work and one of the objects of this invention is to provide a construction in which the feeder can feed slip-sheets to the impression cylinder, and the latter while carrying the fresh sheets around to receive an impression in the ordinary way will also carry the slip-sheets in such a manner that the same will not receive an impression, and will deposit them alternately so that the feeder may slip-sheet his own work in a simple and convenient manner.

Further objects of the invention are to provide a construction of impression cylinder especially adapted to grip and carry the slip-sheets in the manner above specified; to combine the same with conveniently located feed tables for fresh and slip sheets, and with a plate-cylinder especially adapted for receiving a bent intaglio plate; to provide an improved construction of such plate cylinder whereby the same will efficiently clamp the plates in position; to provide for lifting the doctor blade gradually to the surface of the plate, whereby ink is prevented from accumulating on the forward edge thereof; to provide means whereby the fountain may be most conveniently slipped in upon a shelf and accurately located in position so that fountains of different lengths may be employed; to provide a construction whereby inequalities in the doctor blade may be rendered harmless, as by the use of a pair of such blades acting in conjunction with each other, or by the use of a longitudinally vibrating blade; and to provide means whereby the doctor blade and inking apparatus may be moved back automatically out of contact with the plate cylinder during alternate revolutions, the plate cylinder and impression cylinder being connected in such a manner that the plate cyl-

inder has two revolutions to one of the impression cylinder.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying features of this invention. Fig. 2 is an end elevation of the plate cylinder showing the shaft of the same in section. Fig. 3 is a side elevation of a portion of the same. Fig. 4 is an end elevation of a part of the plate cylinder and doctor blade operating device on an enlarged scale. Fig. 5 is an end elevation of a portion of the plate cylinder showing the use of two doctor blades therefor, and Fig. 6 is a partially diagrammatic end elevation of the cylinders showing mechanism for operating the doctor blade and inking device to remove them from contact with the plate cylinder during alternate revolutions.

The invention is illustrated as comprising a frame 10 having an arm 11 on which is supported a feed table 12 for fresh sheets. Supported above this feed table is a second feed table 13 for slip sheets. The feed table 12 may be of any ordinary character. On the frame is a shaft 14 which carries the impression cylinder 15 in proper position to receive sheets from the feed table 12. This impression cylinder is provided with two sets of gripping devices 16 and delivering mechanism 17 such as those ordinarily used on two revolution presses. The cylinder is also provided with two cylindrical or curved surfaces 18 and 19 constituting the impression side and back respectively. The surface 18 is of a longer radius than the surface 19, and is designed to receive the fresh sheets. It is just enough smaller than the outside cylindrical surfaces 20 at the ends of the impression cylinder to enable the sheets to receive impressions from the plate on the plate cylinder 21, as will be readily understood. The surface 19, however, is turned down sufficiently to prevent the slip-sheet from coming into contact with the plate.

In operation the feeder feeds from the upper feed table a slip sheet to the back 19 of the impression cylinder, and then a fresh sheet from the lower feed-table to the im-

pression side 18 thereof. A slip sheet will then be delivered to the delivery table 22 and upon it will be deposited the printed sheet. The shaft 14 is mounted eccentrically in a bushing 23 which may be turned by adjusting screws 24 to secure the proper contact between the two cylinders.

The plate cylinder 21 is mounted on a shaft 25 on the frame and is geared to have two revolutions to one revolution of the impression cylinder. In order to hold a curved intaglio plate 26 this cylinder is provided with a clamp 27. This clamp has a jaw 28 inclined with respect to the cylinder cooperating with a similarly inclined jaw 29 on the cylinder itself, so as to hold the bent end of the plate in such a manner as to cause the plate to lie close to the surface of the cylinder throughout its width. The clamp 27 is held in position by screws 30 or the like. It will be observed that the outer convex surface of the clamp constitutes a curved surface forming a gradual rise from the surface of the cylinder to the outer face of the intaglio plate located thereon, consequently, the doctor blade is lifted gradually from the surface of the cylinder to the surface of the plate, which prevents the accumulation of ink in front of the plate.

The inking device comprises a fountain 35 mounted on a shelf 36, the fountain and shelf being provided respectively with projections 37 and notches 38, so that the fountain can be removably mounted on the shelf and can be slipped into position without any adjustment. This permits the ready substitution of fountains of different lengths.

The fountain roller 39 is driven by contact between the surface of the roller and printing plate and the back of the plate cylinder. On the shelf 36 are mounted brackets 40 on which is mounted a pivoted clamp 41 supporting a doctor blade 42 having the usual function.

The clamp 41 may be adjusted by means of thumb screws 43 as is most clearly indicated in Fig. 5 to regulate the angle at which the blade engages the plate. In order to prevent uneven work of the doctor blade on account of any inequalities which may appear therein the clamp is provided with a projection 44 having a roller 45 thereon which engages a cam surface 46 on the edge of the plate cylinder. This operates to vibrate the doctor blade longitudinally. If desired the same object may be accomplished by using a pair of doctor blades as indicated in Fig. 5. In either case, the pivoted clamps are provided with projections 47 which are provided with a weight 48 or the like to normally hold the doctor blade in contact with the plate or cylinder.

The inking fountain and the doctor blade can be mounted in substantially stationary

position, but as the printing cylinder makes two revolutions to each impression, I prefer to provide means for some classes of work in which there is but one scraping for each impression in order to save wear on the plate. Of course in this case there should preferably be but one inking for each impression, and consequently the fountain and doctor are made movable to and from the plate cylinder. For this purpose a cam 50 is mounted on the shaft 14 or in any other place to have two revolutions to one of the plate cylinder, and this cam operates a pair of levers 51 and 52 connected by links 53 and 54 respectively with the fountain and doctor blade to withdraw them from contact with the impression cylinder during alternate revolutions.

In some classes of work two scrapings will be necessary for each impression, and then the press may be operated without these connections.

While I have illustrated and described a particular form in which I prefer to embody my invention, I am aware that many modifications may be made therein without departing from the scope thereof, as expressed in the claims. Therefore, I do not wish to be limited to the particular construction shown, but

What I do claim is:—

1. An impression cylinder having a cylindrical surface for engaging the printing member and for receiving sheets to be printed, and a surface having a shorter radius for receiving slip sheets and holding them out of printing position.

2. An impression cylinder for a printing press having a cylindrical sheet carrying surface of a shorter radius than the main part of the cylinder, and having means for gripping a slip sheet on said surface in position to pass the impression mechanism without receiving an impression.

3. In a printing machine the combination of an impression cylinder having two cylindrical sheet carrying surfaces, one of said surfaces having a shorter radius than the other, means for alternately gripping sheets to be printed and slip sheets at the same point, and means for alternately delivering them in a pile.

4. In a printing press, the combination of an impression cylinder having two sets of gripping devices, one for fresh sheets, and the other for slip sheets, and a printing cylinder connected with the impression cylinder to make two revolutions while the impression cylinder makes one.

5. In a printing press, the combination of an impression cylinder having two cylindrical surfaces, one for receiving fresh sheets, and the other for receiving slip sheets, the latter being of a shorter radius than the former, and a printing cylinder

contacting with the larger cylindrical surface, whereby the fresh sheets will receive an impression, and the slip sheets will pass the printing cylinder without receiving an impression.

6. In a printing press, the combination of an impression cylinder adapted to carry fresh sheets on one side thereof and slip sheets on the other side, a printing cylinder constructed and adapted to carry an intaglio plate, and means for driving the printing cylinder at twice the speed of the impression cylinder.

7. In a printing press, the combination of an impression cylinder adapted to carry fresh sheets on one side thereof and slip sheets on the other side, a printing cylinder constructed and adapted to carry an intaglio plate, means for driving the printing cylinder at twice the speed of the impression cylinder, a cleaning and inking device

for the printing cylinder, and means for withdrawing the cleaning and inking device from contact with the printing cylinder during each alternate revolution thereof. 25

8. In a printing press, the combination of an impression cylinder adapted to deliver fresh sheets and slip sheets alternately, a printing cylinder adapted to carry an intaglio printing plate, a cleaning device for the printing cylinder, and means for withdrawing the inking device from contact with the printing cylinder during each alternate revolution thereof. 30.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses. 35

H. A. WISE WOOD.

Witnesses:

MARY E. McCADDEN,
ANNIE B. WALTERS.